

(PCT Article 36 and Rule 70)

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP2004/017106

## Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-7, 10, 13-53 as originally filed/furnished
- pages\* 8, 9, 11, 11/1, 12 received by this Authority on 20.09.2005
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the claims:
- nos. 1-5, 7, 8, 12-14, 16-20, 22-43 as originally filed/furnished
- nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19
- nos.\* 6, 9-11, 15, 21 received by this Authority on 20.09.2005
- nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the drawings:
- sheets fig. 1-18 as originally filed/furnished
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

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Box No. IV

Lack of unity of invention

1. ☒ In response to the invitation to restrict or pay additional fees the applicant has:
- ☐ restricted the claims.
- ☐ paid additional fees.
- ☐ paid additional fees under protest.
- ☒ neither restricted the claims nor paid additional fees.
2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is:
- ☐ complied with.
- ☒ not complied with for the following reasons:

Claims 1 to 8, 10, 11, 15 to 21, 24, 25, 27 to 33 and 39 pertain to crystalline layered compounds that have the specific base structure and the specific x-ray powder diffraction pattern that are set forth in claim 1; to zeolites that are produced from said crystalline layered compounds; or to a method for the production of  $\epsilon$ -caprolactams which employs said zeolites. Meanwhile, claims 9, 12 to 14, 22, 23, 26, 34 to 38 and 40 to 43 pertain to zeolites that have the chemical composition and the abstract geometric crystal structure that are set forth in claim 9 and claim 23, or to a method for the production of  $\epsilon$ -caprolactams which employs said zeolites.

Such being the case, the inventions in question cannot be considered to be a single invention or a group of inventions that are so linked as to form a single general inventive concept.

[Refer to the Supplemental Box]

4. Consequently, this report has been established in respect of the following parts of the international application:

☐ all parts.

☒ the parts relating to claims Nos. 1-8, 10, 11, 15-21, 24, 25, 27-33, 39

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1. Statement			
Novelty (N)	Claims	<u>1-8, 10, 11, 15-21, 24, 25, 27-33, 39</u>	YES
	Claims	<u></u>	NO
Inventive step (IS)	Claims	<u>1-8, 10, 11, 15-21, 24, 25, 27-33, 39</u>	YES
	Claims	<u></u>	NO
Industrial applicability (IA)	Claims	<u>1-8, 10, 11, 15-21, 24, 25, 27-33, 39</u>	YES
	Claims	<u></u>	NO
2. Citations and explanations (Rule 70.7)			
<p>Document 1: JP 7-291620 A (Mizusawa Industrial Chemicals, Ltd.), 07 November 1995</p> <p>Document 2: JP 2003-73115 A (National Institute of Advanced Industrial Science and Technology (AIST)), 12 March 2003</p> <p>The inventions set forth in claims 1 to 8, 10, 11, 15 to 21, 24, 25, 27 to 33 and 39 are novel and involve an inventive step in relation to documents 1 and 2 cited in the international search report.</p> <p>Documents 1 and 2 do not disclose the crystalline layered compounds that are set forth in claim 1 or the zeolites that are set forth in claim 10; furthermore, it would not have been easy to conceive of the compounds and the zeolites in question, even for a person skilled in the art.</p>			

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**Box No. VI**      **Certain documents cited**

## 1.    Certain published documents (Rule 70.10)

Application No. Patent No.	Publication date (day/month/year)	Filing date (day/month/year)	Priority date (valid claim) (day/month/year)
<b>JP 2004-175661 A</b> <b>[EX]</b>	<b>24.06.2004</b>	<b>14.11.2003</b>	<b>14.11.2002</b>
<b>JP 2004-33944 A</b> <b>[EX]</b>	<b>02.12.2004</b>	<b>18.11.2003</b>	<b>25.04.2003</b>

## 2.    Non-written disclosures (Rule 70.9)

Kind of non-written disclosure	Date of non-written disclosure (day/month/year)	Date of written disclosure referring to non-written disclosure (day/month/year)
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**Box No. VIII**      **Certain observations on the international application**

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

The inclusion of the term "and" in the disclosure of claim 24 suggests that the zeolites set forth therein have four types of crystal structure. However, it is impossible for a single zeolite to simultaneously have four types of crystal structure, and thus the content of the disclosure in question is unclear. Such being the case, claim 24 cannot be said to be set forth in a sufficiently clear manner.

**Supplemental Box**

In case the space in any of the preceding boxes is not sufficient.

Continuation of:

Box IV.3

(That is to say, the disclosures pertaining to the latter inventions do not mention the technical characteristics that should result from using the specific crystalline layered compounds that are set forth in claim 1 (i.e., specific microstructures such as the X-ray powder diffraction pattern), and thus claims 1 to 43 cannot be said to share a common technical feature.)